

WHAT IS CLAIMED IS:

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1. A pneumatic tire comprising:

a plurality of reinforcing layers in each of which cords, which are inclined at a predetermined angle with respect to a tire circumferential direction, are provided parallel to each other;

a tread provided on a top of said reinforcing layers which are laminated; and

a block-shaped land portion having a sipe, said block-shaped land portion being defined on a tread surface by main grooves formed in the tire circumferential direction and by lug grooves formed in a direction intersecting the main grooves;

wherein said sipe is shaped so as to be twisted around a first central axis of twisting extending in a tire radial direction in the block-shaped land portion and a second central axis of twisting extending substantially in a tire transverse direction, a position P1 of said first central axis of twisting in a region between one end surface of the block-shaped land portion and another end surface in the tire transverse direction and a position P2 of said second central axis of twisting in a region between a contact patch area and a bottom of the sipe in the tire radial direction being within ranges satisfying the following relational expressions:

$$0.2W \leq P1 \leq 0.8W$$

$$0.2F \leq P2 \leq 0.6F$$

wherein P1, P2 represent the position of said first and second central axes of twisting respectively; W represents a distance from the one end surface to

Sub B1
the other end surface of the block-shaped land portion in the tire transverse direction; and F represents a distance from the contact patch area to the bottom of the sipe in the tire radial direction.

2. A pneumatic tire comprising:

a plurality of reinforcing layers in each of which cords, which are inclined at a predetermined angle with respect to a tire circumferential direction, are provided parallel to each other;

a tread provided on a top of said reinforcing layers which are laminated; and

a block-shaped land portion having a sipe, said block-shaped land portion being defined on a tread surface by main grooves formed in the tire circumferential direction and by lug grooves formed in a direction intersecting with the main grooves;

wherein said sipe is shaped so as to have a first protruding portion protruding in a first direction with respect to a virtual central plane and a second protruding portion protruding in a second direction opposite the first direction across the virtual central plane, said sipe including a surface portion exposed on a contact patch area of said block-shaped land portion and a bottom portion formed in a bottom of the sipe, the virtual central plane being twisted from the surface portion toward the bottom portion.

3. A pneumatic tire according to claim 2, wherein said sipe is wave-shaped in a section parallel to the contact patch area of the block-shaped land portion.

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6. A pneumatic tire according to any of claims 2 through 5, wherein said virtual central plane is shaped so as to be twisted around a second central axis of twisting extending substantially in the tire transverse direction in said block-shaped land portion, a position P2 of said second central axis of twisting in a region between the contact patch area and the bottom of the sipe in the tire radial direction being within a range satisfying the following relational expression:

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wherein P2 represents the position of the second central axis of twisting;
and F represents a distance from the contact patch area to the bottom of the
sipe in the tire radial direction.

7. A pneumatic tire comprising:

a plurality of reinforcing layers in each of which cords, which are
inclined at a predetermined angle with respect to a tire circumferential
direction, are provided parallel to each other;

a tread provided on a top of said reinforcing layers which are
laminated; and

a block-shaped land portion having a sipe, said block-shaped land
portion being defined on a tread surface by main grooves formed in the tire
circumferential direction and by lug grooves formed in a direction
intersecting the main grooves;

wherein said sipe is shaped as a closed loop which is connected with
neither said main groove nor said lug groove, said sipe including a surface
portion exposed on a contact patch area of the block-shaped land portion
and a bottom portion formed in a bottom of the sipe, the sipe being twisted
from said surface portion toward said bottom portion.

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8. A pneumatic tire according to ~~any of claims 1 through 7~~, wherein the
block-shaped land portion is twisted from the contact patch area toward the
bottom portion.

9. A pneumatic tire according to claim 8, wherein a direction of twisting

